



WATER SECURITY
Knowledge Exchange Programme



Water Security KEP Annual Report

First Annual Report of the
Water Security Knowledge Exchange Programme
April 2011 – March 2012

Date: Friday 4th May 2012
Report Number: WSKEP Annual Report 01
Version Number: 1.0

Document Information

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Distribution	The NERC KE Programme Executive Board and the Programme Advisory Group
Document Reference	WSKEP Annual Report 01

Document History

Date	Revision	Prepared by	Organisation	Approved by	Notes
30/04/12	V1.0 Draft	Isabella Tindall and Neil Runnalls	CEH	Alan Jenkins and Michael Norton	Report sent for comment and approval
	V2.0	Isabella Tindall and Neil Runnalls	CEH	Alan Jenkins	Report submitted to NERC KE PEB and the PAG

Acronyms

BIS	UK Department for Business, Innovation and Skills
BTN	Better Thames Network
CEH	Centre for Ecology and Hydrology
CIWEM	Chartered Institution of Water and Environmental Management
CCN	Catchment Change Network
CREW	Centre of Expertise for Waters
CRL	Cooper Repco Ltd
CS	NERC Climate Systems Theme
CWC	Changing Water Cycle
DCLG	Department for Communities and Local Government
DECC	Department of Energy and Climate Change
DFID	Department for International Development
EA	Environment Agency
FFG	Defra Food and Farming Group
FREE	Flood Risks and Extreme Events Programme
FRM	Defra Flooding Group
GOTW	Grants on the Web
HPA	Health Protection Agency
JPI	Joint Programming Initiative
KIM	Knowledge Innovation Manager
KE	Knowledge Exchange
LOCAR	Lowland Catchment Research Programme

LWEC	Living with Environmental Change
MN	Macronutrients Programme
NERC	Natural Environment Research Council
NH	NERC Natural Hazards Theme
OFWAT	The Water Services Regulation Authority
PAG	Programme Advisory Group
PMG	Programme Management Group
RELU	Rural Economy and Land Use Programme
RP	Research Programme
RSPB	Royal Society for the Protection of Birds
SEPA	Scottish Environment Protection Agency
SIDS	Science Impacts Database
SIM	Science and Innovation Manager
SME	Small and Medium Enterprises
STAR	System for Targets and Risks
SUNR	NERC Sustainable Natural Resources Theme
SPS	Specific Priority Subject
SSG	Defra Sustainable Consumption Group
UEA	University of East Anglia
UKCDS	UK Collaborative on Development Sciences
UKTI	UK Trade and Investment
UKWIR	UK Water Industry Research
UKWRIP	UK Water Research and Innovation Partnership
WAAQ	Defra Water Availability and Quality Group
WERH	Wales Environment Research Hub
WIG	Cross - Research Council Water Interest Group
WP	Work Package
WSKEP	Water Security Knowledge Exchange Programme

Summary

This Annual report describes the Water Security KEP's progress against its targets and deliverables. It notes key achievements and highlights, outlines future plans, identifies new risks and mitigating measures and presents the current and forecast financial position.

Disclaimer

This document reflects the combined views of the WSKEP Programme Management Group.

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1. Executive Summary

The WSKEP has brought together well over 100 potential users and producers of NERC funded science outputs and generated new partnerships with strong business involvement. It has identified the priority areas where it should focus and is conducting a range of activities to take these forward. For example, by the time of reporting, the WSKEP has hosted nine well attended events engaging stakeholders in priority areas to deliver opportunities to pull through NERC research outputs and identify new, unmet needs and science challenges. It has also been instrumental in supporting Sir John Beddington's UK Water Research and Innovation Framework (UKWRIF) and is part of the subsequent partnership (UKWRIP) sub-group providing input on KE and impact. The KEP is also using the UKWRIP to draw knowledge and needs from UK stakeholders to influence future EU funding via their NERC lead for the EU Water Joint Programming Initiative (JPI).

The WSKEP have also conducted a UK policy synthesis to identify forthcoming impacts upon the sector and opportunities to support the sector and the policy/regulatory community to address these. Strong connections are being built with a range of organisations connected to the business and policy communities, including trade bodies and professional institutions. For example, co-hosting innovation days with British Water to showcase NERC science to businesses and brokering partnerships. The WSKEP has also co-hosted a major conference and other events with CIWEM, including a Blueprint to Safeguarding EU's water which included contributions from the European Commission, Defra, Environment Agency and the World Wildlife Fund. Furthermore, the WSKEP is working with the TSB's Environmental Sustainability KTN to collate and provide knowledge to the users and producers of NERC research outputs.

The Water Security Knowledge Exchange Programme (WSKEP) commenced on 1st April 2011. It has a strong, business led Programme Advisory Board comprising of both users and producers of NERC research outputs. It is chaired by Michael Norton OBE, Global Water Director at AMEC Environmental & Infrastructure.

2. Introduction to the Water Security KEP

Overall aims of the Water Security Knowledge Exchange Programme

The programme will establish a community of researchers and science users to develop networks for effective knowledge exchange. It will:

- Work with policy-makers, industry and civil society organisations to identify priority areas for accelerating knowledge exchange activities.
- Offer a first point of contact for information about water security related research.
- Facilitate a range of knowledge exchange events, bringing together key researchers and users.
- Help users communicate their needs to shape the development of new NERC research programmes.

The five Sub Areas of the Water Security KEP

The programme has been structured into five Sub Areas as outlined below. The first three have been selected to form the focus of activity during the first 18 months of the Water Security Knowledge

Exchange Programme. The remaining two Sub Areas will be addressed during the second eighteen month phase of the programme, subject to reassessment of user needs and a review of the first cycle.

1. Integrated Water management
2. Increased resilience to Extreme Events
3. Ensuring Water Resource Security
4. Coordination of Water Data
5. Sources, behaviour and control of persistent and emerging environmental contaminants

Specific Priority subjects

During the first eighteen months of the programme, WSKEP will undertake smart KE activities directed at nine Specific Priority Subjects (SPS) from the first three Sub Areas. The subjects were identified at the launch of the Water Security Knowledge Exchange Programme as being of particular interest to users and researchers alike.

User based activities

A second line of WSKEP activities is being developed through a bottom up process of dialogue and activities specified by key users of NERC science. The topics and mechanisms of KE implementation will be defined by these users. The User Based Activities will therefore reflect the immediate, medium and long term KE requirements of users, with the mechanism and timing of delivery being determined by the structure and point of need within the user organisation. The WSKEP User Based Activities will run concurrently with the events and follow-up actions in support of Specific Priority Subjects.

3. Key Activities

The description below lists the key activities and achievements by Work Package (WP), during the reporting period.

WP1- Identify key needs and science challenges faced by the users

This Work Package was about identifying the Subjects that would form the basis of the Workshops being run by the Programme. At the first Programme Advisory Group (PAG) meeting on 11th May 2011, a breakout session was held to discuss the Sub Areas for the Programme. A list of five Sub Areas was agreed, three of which were prioritised to be the main area of focus for the first 18 months. A very successful Launch event was held in London on 28th June 2011. It brought users and researchers together with the aim of identifying three SPSs for each of the three selected Sub Areas. This was achieved and a Launch Report written, listing the Subjects along with a description of each of them (see list of headings below).

Sub Area 1. Integrated Water Management

SPS 1.1: Assessing upstream methods of land/water management that improve water quality and quantity

SPS 1.2: Understanding and managing the impacts of climate change on the ecology of catchments

SPS 1.3: Linking natural networks and communities across rural and urban systems

Sub Area 2. Increased Resilience to Extreme Events

SPS 2.1: Improving flood prediction, communication and impact assessment

SPS 2.2: Improving drought prediction, communication and impact assessment

SPS 2.3: Supporting sustainable and resilient management of droughts

SPS 2.4: Supporting sustainable and resilient management of extreme rainfall

Sub Area 3. Ensuring Water Resource Security

SPS 3.1: Assessing the value of water

SPS 3.2: Assessing water-related business risks

SPS 3.3: Informing decision-making for water resources management

WP2 - Identify the science that matches the key needs and challenges of the users

There are three parts to WP2 which build upon each other but the main aim is to create a database of (part 1) UK Institutions undertaking water related science where information on (part 2) contacts, research and (part 3) outputs is recorded. A draft of the first part of this was produced in March 2011 as part of the Knowledge Collation Project. A spreadsheet was generated by interrogating Grants on the Web (GOTW) to list the Organisations that have been successful at winning NERC grants for water related projects. During the year, the Programme Management Group (PMG) contracted Rob Flavin of Cooper Repco Ltd (CRL) to prepare a comprehensive online Directory of UK Organisations and Institutes active in water research (parts 1 and two of this WP). It provides summaries of expertise and full contact details that allow users to make contact with the researcher in one click. The published database went live on 31st March 2012 and can be found at <http://www.ukwaterresearch.net/> (See Figure 1). It is designed to facilitate knowledge exchange and networking between UK research providers and research users. Press releases were sent to UKRO, CIWEM, BHS and UKWIR requesting those active in water research and have experience of leading projects to include their details within the directory. There are now 260 entries in the database with more being submitted every day.

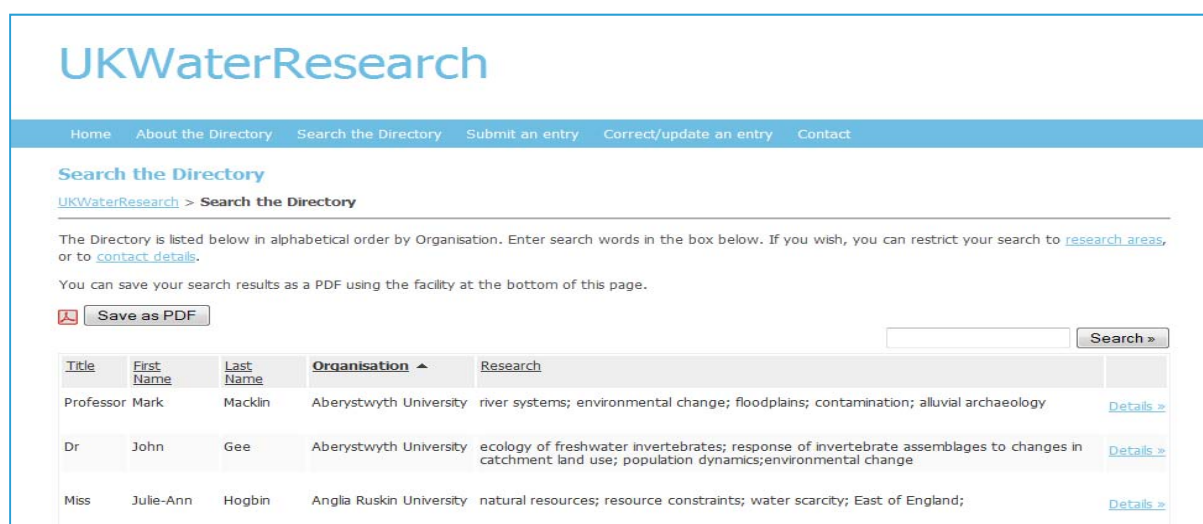


Figure 1 The UK Water Research Directory

The WSKEP website includes selected examples of research projects that have been funded under key sectoral areas, and links to the NERC Grants of the Web, and the LWEC EnviroBase website. The WSKEP website also includes listing of outputs and the impacts of past NERC funded water research

from the NERC Science Impacts Database (SIDS). These examples of science impacts have been selected to provide a comprehensive coverage of the wide range of sectors across NERC where water research has delivered benefits, and as a mechanism to draw users to interrogate the SIDS database for themselves.

Part 3 of this Work Package has not yet been implemented. The database may require modification to store the information on outputs, but it would be collected by asking the researchers to provide the relevant details.

WP3 - Organise Events and Activities to bring together the users and scientists

This Work Package is divided into three parts, 1) the organisation of 9 Workshops during months 1-18 on defined specific priority subjects, 2) activities with users to identify areas where the WSKEP could support their programmes of work and 3) activities in support of recent Research Programmes.

Workshops

During this reporting period, the whole process of designing and organising ten Workshops has taken place. To date four of the Workshops have been held (shaded in blue in Table 1) and the other six will fall into the next four month period. For the Workshops to be successful, effort was channelled into contracting organisations to host the events for each of the ten Specific Priority Subjects. Table 1 shows a timetable of dates, subjects and hosts that have been approached to request their help in running the events.

Table 1 Workshop timetable

Date	Host	Location
Sub Area 1: Integrated Water Management		
Priority Subject 1.1: 30th November 2011	CIWEM / CMS	London
Priority Subject 1.2: 31st January 2012	Wales Environment Research Hub	Bangor
Priority Subject 1.3: 3rd May 2012	James Hutton Institute	Edinburgh
Sub Area 2: Increased Resilience to Extreme Events		
Priority Subject 2.1: 4 th April 2012	CEH Wallingford	London
Priority Subject 2.2: 14 th June 2012	British Geological Survey	Keyworth
Priority Subject 2.3: 19th April 2012	Hydraulics Research	Wallingford
Priority Subject 2.4: 13th June 2012	Hydraulics Research	Wallingford
Sub Area 3: Ensuring Water Resource Security		
Priority Subject 3.3: 19th January 2012	Oxford University Centre for the Environment	Oxford
Priority Subject 3.2: 29th February 2012	Lancaster Environment Centre	Lancaster
Priority Subject 3.1: 1st May 2012	University of Surrey	Guilford

The PMG has met with each host organisation to plan the events and discuss the when, where and who questions that need to be addressed in order to make the individual events a success. (See Section 3 – Key Outputs for more details on the Workshops that have taken place).

User Based Activities

User Based Activities during this period have focussed initially upon the primary users of NERC water related research (Defra, EA and the water sector). During the latter half of the reporting period, relationships were progressively developed with those key users, and new user groups were gradually introduced to the WSKEP. A full list is supplied in the accompanying metrics table, but the highlights are described here.

A well received conference entitled ‘The EU Blueprint to Safeguard Europe’s Water – Highlighting the critical issues for the UK’ was held in London on 11th January 2012. It was organised by Bob Earll of CMS on behalf of the WSKEP. This conference has laid the foundation for future WSKEP activities to highlight the science challenges of these new European water policy areas to UK policymakers, regulators and industry.

WSKEP is leading UK inputs into the EU Joint Programme Initiative (JPI) on Water Challenges for a changing world. A proposal for EZM is being prepared to support this JPI.

The PMG have had regular communication with Defra/EA and have organised a series of activities of relevance to their needs. These have been facilitated by the WSKEP using a variety of funding mechanisms, with co-funding from Defra totally approximately £250,000, financial contributions from CEH and other parties, and where appropriate with pump priming funds from the WSKEP. The user based activities with Defra/EA have either addressed concerns associated with science challenges related to the delivery of the Water White Paper, or strategic issues related to knowledge management for Defra/EA. The majority of these activities related to the Water Availability and Quality Group. Initial discussions are developing areas of KE collaboration with other Defra/EA groups including Food and Farming (FFG), Flooding (FRM), and Sustainable Consumption (SSG) Groups. These wider linkages across Defra/EA will be developed in the coming year - 2012/13.

Initial dialogue has identified several areas where NERC science could be better used by OFWAT – and in particular in relation to ecological services and their valuation. Several of these areas of activities are being developed through partnerships with water companies, CSO’s, government agencies and universities – rather than directly with OFWAT. OFWAT is aware of these activities, and are likely to provide active endorsement and participation as these activities develop.

At an early stage of the WSKEP discussions were initiated with CIWEM and a range of complementary interests were identified. These have included :

- a) Publicising the WSKEP and its activities through CIWEM’s extensive members lists
- b) Using CIWEM conferences to reach a greater number of stakeholders and engage in less intensive knowledge exchange activities. This has included the Blueprint conference and the re-alignment of one of the sessions at the 2012 CIWEM Annual Conference to address the issue of water security.
- c) CIWEM has also been used to facilitate raising the profile of the WSKEP and its objectives to parliamentarians.

The WSKEP have had discussions with British Water regarding their inputs and contributions to the WSKEP. These have included :

- a) Participation in British Water parliamentary events where the WSKEP and its objectives were highlighted to parliamentarians, and to other members of British Water.

- b) Supporting attendance by academics at British Water Innovation Days with SME's, to discuss water company knowledge needs and build collaborative relationships between academics, SME's and water companies. There has been strong interest from the water companies in these Innovation Days, and the researchers who have attended report better understanding of the needs of the water company and of the SME supply chain.
- c) Agreement has been reached with British Water to host KE activities related to two key issues in the urban environment for British Water members and for Defra/EA/Local Government and the water industry – diffuse pollution and SUDS. Activities in these two will involve bringing together local government agencies, researchers, companies working on urban drainage and the water companies to identify unexploited knowledge, knowledge gaps, priority challenges, build partnerships and identify possible funding mechanisms. Information from these activities will be provided to a range of funding bodies, targeting different types of knowledge gaps to the different funding bodies.
- d) Apart from preliminary correspondence, complementary activities and linkages with UK Trade and Investment (UKTI) and British Water as the prime contractor for organising water related inward and outward trade missions, activities have remained undeveloped during the reporting period.

The WSKEP are also discussing the alignment and coordination of the WSKEP with the LWEC UKWRIP. These discussions are on-going and areas of mutual complementarity are being explored. Where ever possible the WSKEP has been publicising the UKWRIP at its SPS workshops and other activities.

Using the SPS workshops and other events organised outside the WSKEP, discussions with other key stakeholders have been initiated about their specific needs. This has included discussions with N-Power, Network Rail, British Waterways, the Rivers Trust, Natural England and RSPB among others. Many of these organisers have only minor interest in NERC water research outputs, but where there is scope for greater engagement with NERC, then these organisation have been either drawn into the SPS workshops, or to activities of more specific interest to themselves.

Research Programmes

The third task to support actions in relation to recently completed NERC Research Programmes (RPs) has seen the WSKEP in discussion with Principal Investigators from the LOCAR Programme. The WSKEP is supporting Adrian Butler of Imperial College, London in his efforts to exchange groundwater knowledge gained during his LOCAR project with interested users, and Lancaster University KE from the RELU programme. The WSKEP has also facilitated greater impact of the RELU research undertaken at UEA and being delivered by KE Fellow Tobias Kruger.

In partnership with the Programme Managers of the Changing Water Cycle (CWC) and Storm Risk Research Programmes (Graham Leeks) and the programme manager of the Macronutrients Programme (Paul Whitehead), the WSKEP has developed a protocol whereby the WSKEP will support these NERC Research Programmes. This protocol allows PI's and the Programme Management team to build upon the Impact Plans of each funded project, prepare a programme level synthesis report identifying common areas of user engagement and develop a plan for delivery of programme level KE activities. The WSKEP will offer complementary support to these programme level KE activities.

A representative of the WSKEP was invited by the Macronutrient Research Programme to a stakeholder consultation in March 2012. This provided an opportunity for key stakeholder (Defra, EA, Scottish Government, SEPA, Welsh Assembly, Welsh EA, Natural England, Rivers Trust, OFWAT, consulting sector, etc) to share their aspirations for the Macronutrients RP. Discussion are now on-going between the MN Programme Manager, Defra and the other stakeholders about

priorities and mechanism by which the MN research programme can deliver these user's requirements.

The WSKEP has undertaken a range of activities to establish effective communication channels between itself and the NERC science planning and management teams. One of the NERC Theme Leaders was invited to join the WSKEP Programme Advisory Group, and regular dialogue was held with other Theme Leaders. While these informal relationships and communications served their purpose during the initial stages of the WSKEP, there is now a need for more structured and formalised connections between the WSKEP and the science planning teams in NERC.

Occasional discussions were also held with the NERC Science Innovation Managers (SIM's), keeping them informed of progress in setting up the WSKEP. Towards the end of the reporting period the WSKEP began to produce concrete outputs from its SPS workshops – which then provided some substantial information to communicate to the SIM's and Theme Leaders.

WP4 - Connect and coordinate KE across NERC

This Work Package is divided into two parts, 1) is about connecting and communicating with other groups whilst part 2) concerns the management and maintenance of the WSKEP website.

Connecting and communicating

Information about each KE Fellow, Network and Project has been brought together and made available through the WSKEP website.

KE Networks : The WSKEP has undertaken several types of activity to support the NERC Catchment Change Network – CCN (based at Lancaster), and the Better Thames Network –BTN (based at Westminster). The first priority has been to put in place new funding lines which would take both these networks beyond the end dates of their NERC funding. The WSKEP highlighted the need for additional funding for CCN to Defra/EA and will support a researcher-stakeholder workshop in 2012/13 to identify relevant knowledge to support a knowledge hub for the Defra/EA Pilots. The WSKEP assisted the BTN in obtaining high level Defra/EA support for funding beyond the close of their NERC grant – this new funding is expected to be provided by EA Thames Region.

KE Fellows : The WSKEP has undertaken activities to support and add value to the NERC KE Fellows. Vicki Hirst, the KE Fellow at Leeds attended both the Launch Event and the SPS1.1 Workshop in London. As part of her Fellowship she ran a well attended Workshop in Leeds on 17th January 2012 for practitioners who are involved in the implementation of the Water Framework Directive. Tobias Kruger, another KE Fellow also attended the SPS1.1 Workshop on 30th November 2011 and has been supported in his demonstration of RELU derived stakeholder participatory methods in the Defra/EA Pilot catchments. Tanya Warnaars has been provided with advice and support in contacting stakeholders, in discussions with the Financial Services KTN – she also attended and contributed to the WSKEP SPS Workshop in Lancaster. Some NERC KE Fellows have preferred to remain independent of the WSKEP – and hence apart from occasional contact at the Annual Meeting of NERC Fellows – no collaborative support has been possible.

KE Projects : Nick Reynard is responsible for a KE project called Fruitful, part of the Flood Risk and Extreme Events (FREE) Programme. The PMG have discussed with him, ways in which his activities can be integrated within the Programme and thereby have greater impact.

Other NERC KE Programmes : The WSKEP has been involved in sharing experiences and best practices with the other NERC KE Programme on Marine Renewable Energy. The WSKEP also provided support to KIM's developing the Agri-Food, Natural Resources and Financial Services KE's.

Other Academic KE Networks :The WSKEP have also had conversations with other academic networks that include KE activities. This has included discussions with the N8 Research Partnership, the Wales Environment Research Hub WERH and the Scottish Centre for Excellence in Water Research (CREW). Where possible synergies and exchange on best practice in KE have been discussed. It is expected that WSKEP supported work by the WERH to pull through academic knowledge on ecosystem services for policymakers, regulators and industry will be completed. Depending upon the results, the processes, methods and tools develop by WERH may be disseminated more widely across the UK.

Dan Osborn is the NERC Lead on LWEC and the WSKEP have had several meetings with him to discuss ways to collaborate on the LWEC UK Water Research and Innovation Framework (UK WRIF) Initiative. The PMG are also aware that LWEC have produced a document entitled 'Guidelines to Knowledge Exchange'. Graham Leeks attended two meetings regarding its production. The WSKEP will be seeking to use any relevant best practices from this Guide in the last two years of the Programme.

Members of the PMG attended the Research Council's Water Interest Group showcase event on 6th March 2012 to help showcase NERC's water related research and the work of the WSKEP. This event provided a useful example of the additional impact to be achieved when water research from all the Research Councils is presented in a coordinated way.

WSKEP Website

The WSKEP website has been high on the risk register throughout the reporting period. NERC produced a portal for all the KEs use but unfortunately it did not function as the PMG expected. At the January 2012 PAG meeting it was agreed that the PMG could implement the temporary website that they had been designing as a backup. This site has now been launched and can be found at <http://www.wskep.net/> (Figure 2Error! Reference source not found.). It contains information on the following topics: About us (including the KEP Programme and KE networks, Fellows, placements and projects), Events (both WSKEP Workshops and other organisations events), Research and Innovation (funding opportunities, NERC Grants on the Web and NERC's Science Impacts database), News (news articles and the e-zine), Networks (including the UK Water Research Directory and links to many other networks) and a Document store. It is regularly updated and the e-zine is produced once a month. This is sent out to all those in the WSKEP contacts database which currently stands at over 1200 members.



Figure 2 The WSKEP Web site

WP5 - Communicate with the science and user communities

There are two tasks relating to WP5. The first is to produce a Communication Strategy explaining how the WSKEP will communicate to its audience. After consideration of options for developing and delivering this Communication Plan using internal CEH resources, the PMG outsourced this task to Cooper Repco Ltd. The WSKEP Communications Plan was completed by Cooper Repco Ltd in January 2012 and submitted to NERC. As this is a “live” document, it will be regularly reviewed and updated – taking into account new developments and defined priorities of the Programme.

The second task for this WP is to organise a High Level Event at the end of the first phase of the Programme (an eighteen month period). A date has been set for 11th September 2012 and meeting rooms booked at BIS in Victoria Street, London. Initial plans have been made for the objectives, target audience and organisation of this event.

WP6 - Act as a KE Ambassador

This WP is an ongoing activity whereby the good practice in relation to KE is shared among the NERC community. Opportunities to share experiences have been undertaken whenever possible, for example at the Launch event and each of our Specific Priority Subject Workshops. As described above, the WSKEP has interacted with other NERC KE networks and programmes, those of other Research Councils, other university led proposals, initiatives by sponsored government departments and devolved governments, trade and professional associations and European and international KE networks. Across this wide range of communities, the WSKEP has been able to highlight NERC’s commitment to, and leadership in knowledge exchange.

Within NERC, the WSKEP has taken leadership in NERC’s international relationships with the European Commission on the Joint Programming Initiative, and as a point of contact on NERC’s wider international collaboration on water related science and technology.

Engagement with the NERC HQ Theme Leaders and science management teams has been at two levels. The NERC Theme Leader for Sustainable Natural Resources (SUNR) was invited and accepted a place on the Programme Advisory Group of the WSKEP. This provided a formal linkage between the WSKEP and the development of NERC Science and giving her a formal role in review and advising on the direction of the Programme. Unfortunately due to other priorities, the Theme Leader for SUNR has not been able to attend any of the PAG meetings. The Theme Leader for Natural Hazards (NH) has now been invited to attend the PAG and he will attend the PAG meeting in May 2012.

On an informal level – numerous discussions have been possible throughout 2011/12 between the Director of the WSKEP and the NERC Theme Leaders for Sustainable Natural Resources Natural Hazards, Climate Systems (CS), and Technologies. Similarly, but less frequently, there have been opportunities to brief NERC Science Innovation Managers (SIM’s) for SUNR, NH and CS) on the progress and objectives of the WSKEP. The discussion and outputs of the WSKEP workshop on droughts have been well received by the NERC Science team developing the Drought Research Programme. Greater appreciation of the value of the KE process and the WSKEP in particular is also evident in invitations to participate in the development of the forthcoming Floods NERC Research Programme.

Discussion were initiated in mid 2011 and are now on-going to involve the WSKEP in the informal cross- Research Council Water Interest Group (WIG). Such involvement is likely to facilitate closer discussion and alignment of activities between the WSKEP and the SIM’s.

WP7 - Manage the WSKEP

This WP relates to the management of the Programme by the PMG. The PMG consists of a Lead, a part time Project Manager, a part time Programme Development Manager and a Coordinator. The Programme Coordinator's position was only filled at the end of September 2011. The five month delay in making this appointment created considerable difficulties at the start of the Programme. However, since then, the backlog of outstanding activities has been addressed and much faster progress is being made across all areas of the Programme. The PMG meets on a monthly basis to discuss progress, issues and upcoming events. Minutes are prepared for all meetings and actions are followed up.

The Programme Advisory Group consists of individuals who volunteer their time and who have been selected in order to provide a diverse range of insights into water related issues. The PAG was formed before the start of the Programme, however, a final list of members was selected at the start of the period. This task completed, the first PAG meeting was held on 11th May 2011. The Agenda contained items to set the scene for the members before moving on to breakout groups to identify a list of five Sub Areas, three of which were prioritised to be the main areas of Workshop focus for the next 18 months. The second PAG meeting was held on 22nd September 2011 and the third on 18th January 2012. All meetings were held at CEH Wallingford and were minuted and actions completed. A priority for these meetings has been to provide the PAG members with insights and benefits from participation in these meetings that will complement their professional duties

In order that the ten Sub Area Workshops, three Review meetings and the High Level Event are a success, a facilitator, Peter Woodward of Quest Associates Ltd was contracted to help prepare for and to attend each event. He provides consistent leadership to every Workshop and because he is involved in all the events he is able to help advise on any follow up activities. He was not involved in the Launch event but at all four Workshops his skills kept the audiences interested, participating and active right through the day. (See Section 3 – Key Outputs for more details about the Workshops.)

At the end of the first six months of the Programme, the 1st Financial Statement was prepared and submitted to the NERC KE Executive Board. A second Financial Statement forms part of this Report.

During the reporting period, the branding for the WSKEP was designed. This has been an evolutionary process, starting with the logo which was created by NERC on our behalf. Since then other publicity material has been prepared including, the website, a brochure, an A5 postcard, two pull up banners and templates for reporting and PowerPoint presentations.

The Programme is required to keep and regularly update a risk register. The PMG has taken on this responsibility, transferring it onto STAR, the System for Targets and Risks. The WSKE Programme is the first project to use the STAR system below corporate CEH level.

The PMG completed the first and second Interim reports to the NERC KE Programme Executive Board and has submitted the Annual Report along with the supporting metrics table and Financial Statement.

4. Key Outputs

The key outputs from this period were:

- The WSKEP Launch
- Priority Subject 1.1 Workshop: 30th November 2011, London

- Priority Subject 1.2 Workshop: 31st January 2012, Bangor
- Priority Subject 3.3 Workshop: 19th January 2012, Oxford
- Priority Subject 3.2 Workshop: 29th February 2012, Lancaster
- KE Activities developed with key End Users
- Added value to other NERC KE activities

The WSKEP Launch event was held at the Department for Business, Innovation and Skills at 1 Victoria Street, London on 28th June 2011. Its main goal was to bring together government and industry organisations with interests in water issues to raise awareness of the Water Security KE Programme, to identify research priorities, and to discuss how to improve research-user exchange. The day started with two presentations on perspectives from policy makers and industry given by Stuart Kirk and Michael Norton. The Programme was explained before the workshop broke up into 3 groups to discuss the following topics: Integrated Water Management, Increased Resilience to Extreme Events and Ensuring Water Resource Security. The aim of the breakout groups was to engage workshop participants in discussing and prioritising the SPSs for each of the three Sub Areas. Example Priority Subjects were given as a starting point but they could be modified and others added. It was explained that the top three in the final list would become the focus of activities for the first eighteen months of the WSKEP. Attendees were given the opportunity to attend other groups to give their opinions. A feedback session followed before the Launch closed. The PMG considered the event a success. A Launch Report was written listing the SPSs along with a description of each. It was sent to all participants as well as all members of the PAG.

Four Workshops have been held in London, Bangor, Oxford and Lancaster during the reporting period. Each one was organised and hosted by a different organisation who had experience in the priority subject under discussion. Via their networks they were able to bring in experts in the field to participate in the Workshop. The hosts were contracted to organise a venue with catering facilities, send out invitations and follow them up, prepare Workshop papers and act as the host on the day. Peter Woodward, the facilitator ran the proceedings on the day. There were four sessions that a) set the scene for the WSKE Programme and the topic for the day b) discussed current research in this area c) looked at possible projects to build researcher – user relationships and d) discussed ways of improving existing networks and the WSKE Programme. The Workshops have all been very successful. Potential collaborations resulting from all the Workshops are recorded in the Metrics spreadsheet. The Sub Area Reviews will look at these with an aim to follow them up in an appropriate manner. The feedback from the participants has been positive and helpful. Workshop Participant Outcomes Reports have been prepared within a week and sent to all participants. Summary Outcomes Reports are being prepared for all the Workshops as well. These will be available on the Programme website.

Agreements for partnerships in KE activities were reached with key end-users of NERC science in government and industry. In addition to the building of new relationships with these end users, activities have produced outputs such as reports on agreed knowledge gaps, mechanisms to exploit available knowledge in new ways, guidance notes on the design of systematic reviews and the development of a proforma for undertaking synthesis reports. When using a mechanism such as co-sponsoring the European Blueprint conference, where the objective was to raise awareness across the water community of the knowledge requirements of these new policies – outputs were made widely available as downloadable speakers presentations, and reports in publicly accessible websites with very large readership.

The highest priority in regard to the coordination of NERC KE has been to secure a sustainable future for both the CCN and BTN KE Networks before their NERC funding expires in October 2012. While discussions with funders are still currently on-going, there are as yet no tangible outputs such as new contracts. The WSKEP includes a web-page and links to the KE Fellows and Networks – and as such

provides an output indicative of the activities that have been undertaken with the Fellows and Networks.

The new Programme Website at <http://www.wskep.net/> was launched in March 2012 and has greatly raised the awareness of the Programme amongst users and researchers alike. It provides a platform for advertising WSKEP and other organisations events, communication and networking, news items as well as other sources of useful information.

A list of publications is provided in the metrics spreadsheet.

5. Key Outcomes and Impact

The Launch Event

At the Launch, three Specific Priority Subjects were defined for each Sub Area. These Subjects have become the main areas of focus for the rest of the current eighteen month phase of the Programme. As a result of defining the subjects, the events to bring the researchers and users together could be planned. Dates for all the events were selected and organisations asked to host them. This planning will continue over the next few months till all the events have been held.

The Workshops

The main deliverables from the Workshops are the Workshop Participant and Summary Outcomes Reports, containing amongst other things, proposed KE projects. As a result of the events and the reports, users and researchers have become better acquainted and involved in the process of KE. Potential KE projects have been proposed, which if followed through, will enable NERC science to be taken up and better exploited by users.

User Based Activities

The building of User Based activities have followed a fairly consistent pathway. From initial very tentative discussions, the dialogue between the WSKEP and key end users have gradually clarified what type of KE activities are possible, and then moved to identifying first one or two promising user priorities, refining these into smarter KE actions, and then getting some concrete experience and benefit returned to the end-user. Once these typical stages have been passed, the end user (eg in the case of Defra/EA) has been able to identify (and co-fund or fully fund) numerous collaborative KE activities facilitated by the WSKEP.

At the end of year one, where the WSKEP has had major delays due to lack of staffing and in having an operating web-site, User Based activities have made remarkable progress, and in the case of Defra/EA WAAQ and British Water, these needed to be constrained to the highest impact areas. With several key players (OFWAT, HPA, UKWIR, individual water and consulting companies) initial discussions and the building of understanding about the WSKEP need to move forward to deliver beneficial KE collaboration. Several key industry sectors (eg insurance, electricity) and government departments (eg Scottish Government, DECC, DCLG, UKTI, DfID) have not as yet been adequately engaged.

The WSKEP has been able to play a leading role in managing the UK's membership of the European Joint Programming Initiative on Water, and has successfully engaged other government departments in that initiative. The WSKEP now has the potential to be a key player in shaping the LWEC / UKCDS UK Water Research and Innovation Partnership.

NERC KE Coordination

The main deliverables from the Workshops are the Workshop Participant and Summary Outcomes Reports, containing amongst other things, proposed KE projects. As a result of the events and the reports, users and researchers have become better acquainted and involved in the process of KE. Potential KE projects have been proposed, which if followed through, will enable NERC science to be taken up and better exploited by users.

The WSKEP Website

The development of the WSKEP website had enabled the PMG to complete the outstanding deliverables that were an issue in January for example keeping a calendar of events and producing an ezine. The website and its facilities have promoted the Programme within the water sector and now more users are keen to be actively involved in its activities.

6. Progress against deliverables

Table 2 shows progress against deliverables due during the reporting period, or delayed from a previous period. The blue line indicates the point in time that the Programme has reached.

Table 2 Progress of deliverables

Deliverable	WP	Proposed date	Actual date	Reason for deviation
List of key users produced during KCP reviewed (with more added throughout the life of the Programme)	1	Apr 2011	Ongoing	
Questionnaire of user needs and research gaps prepared and distributed	1	Apr 2011	Overtaken by events	Draft prepared before Launch but not in time to be distributed
NERC funded science Institutions who undertake science of relevance to users identified (with more added throughout the life of the Programme)	2	Apr 2011 (Ongoing)	Ongoing	
Make links with key NERC KE Programmes and projects	4	Apr 2011 (Ongoing)	Ongoing	
Management of information relating to KE and research funding calls	4	Apr 2011 (Ongoing)	Ongoing	
Maintenance and management of the WSKEP website	4	Apr 2011 (Ongoing)	Production of a website completed. Maintenance ongoing	The WSKEP designed website was produced and approved in March 2012
First PAG Meeting – Minutes & Recommendations	7	Apr 2011	Completed 11/05/11	
Questionnaire results collected, collated, prioritised and reported	1	May 2011	Overtaken by events	The SA's and SPSs were decided at the Launch so Questionnaire is now redundant.
Management of a Register of KE activities	4	May 2011 (Ongoing)	Started	
Bi-Monthly e-newsletter published	5	May 2011	Ongoing	

		(Ongoing)		
Publication of Case Studies on a regular basis	5	May 2011 (Ongoing)	Not started	
Report of priorities as refined by Launch workshop	1	Jun 2011	Completed 16/08/11	
List of five prioritised key Sub Areas on which to focus effort reviewed by the PAG	1	Jun 2011	Completed 07/06/11	
Specific Priority Subjects for top three Sub Areas identified and prioritised by the PAG	1	Jun 2011	Completed 16/08/11	
User Based KE Events held as appropriate	3	Jun 2011 – May 2012	Ongoing	
Planning for Sub Area Workshops	3	Jul 2011 – Apr 2012	Ongoing	
Coordination Plan of NERC water related KE Activities (Fellows, projects etc)	3	Jul 2011	Ongoing	
Reports and notes on individual KE integration activities	3	Jul 2011 – May 2012	Ongoing	
A compendium of case studies	4	Jul 2011 (Ongoing)	Not started	
A calendar of KE events	4	Jul 2011 (Ongoing)	Ongoing	
First Interim Report to NERC Executive Board	7	Jul 2011	Completed 08/09/11	
Reports on delivery of ten Sub Area workshops	3	Aug 2011 – Apr 2012	Ongoing	4 completed
Second PAG Meeting – Minutes & Recommendations	7	Aug 2011	Completed 22/09/11	
Online compendium setup of what research has been / is being conducted which relates to user needs	2	Sept 2011	Completed 31/03/12	
Business friendly database of related scientific outputs from the relevant NERC funded Institutions setup.	2	Sept 2011	Not started	
Communication Strategy written	5	Sept 2011	Completed Dec 2011	
Second Interim Report to NERC Executive Board	7	Nov 2011	Completed 06/01/12	
Third PAG Meeting – Minutes & Recommendations	7	Dec 2011	Completed 18/01/12	
First Annual Report to NERC Executive Board	7	Mar 2012	Completed 04/05/12	
Fourth PAG Meeting – Minutes & Recommendations	7	Apr 2012	Started	Papers sent to PAG members on 27/04/12
Report on Review workshop of each Sub Area	3	May 2012	Started	Plans have been made for the Sub Area Reviews
Review workshop of different User groups	3	May 2012	Not started	
Report of KE Coordination Review	3	May 2012	Not started	
First High Level event	5	Jul 2012 – Aug 2012	Started	Plans have been made for an event on 11/09/12
Fourth Interim Report to NERC Executive Board	7	Jul 2012	Not started	
Planning for Sub Area Workshops	3	Aug 2012 – Oct 2012	Not started	
Fifth PAG Meeting – Minutes & Recommendations	7	Aug 2012	Not started	

3 Business cases for top 3 prioritised Sub Areas based upon workshops, reviews and Month 16-17 High Level event.	3	Sept 2012	Not started	
Reports and notes on individual KE integration activities	3	Oct 2012 – Jan 2014	Not started	
User Based KE Events held as appropriate	3	Nov 2012 – Jan 2014	Not started	
Fifth Interim Report to NERC Executive Board	7	Nov 2012	Not started	
Reports on delivery of nine Sub Area workshops	3	Dec 2012 – Jan 2014	Not started	
Sixth PAG Meeting – Minutes & Recommendations	7	Dec 2012	Not started	
Second Annual Report to NERC Executive Board	7	Mar 2013	Not started	
Seventh PAG Meeting – Minutes & Recommendations	7	Apr 2013	Not started	
Seventh Interim Report to NERC Executive Board	7	Jul 2013	Not started	
Eighth PAG Meeting – Minutes & Recommendations	7	Aug 2013	Not started	
Eighth Interim Report to NERC Executive Board	7	Nov 2013	Not started	
Ninth PAG Meeting – Minutes & Recommendations	7	Dec 2013	Not started	
Report on Review workshop of each Sub Area	3	Jan 2014	Not started	
Review workshop of different User groups	3	Jan 2014	Not started	
Report of KE Coordination Review	3	Jan 2014	Not started	
Second High Level / Final WSKEP event	5	Feb 2014 – Mar 2014	Not started	
3 Business cases for second set of top 3 prioritised Sub Areas produced or updated	3	Mar 2014	Not started	
Final Annual Report to NERC Executive Board	7	Mar 2014	Not started	
Tenth PAG Meeting (if required) – Minutes & Recommendations	7	Mar 2014	Not started	
Evaluation report on the KEP written by the Programme Advisory Group with recommendations	7	Mar 2014	Not started	
Development of case studies of good practice in relation to KE to share amongst the NERC community	6	Ongoing	Not started	
Presentations or short seminars held at appropriate NERC events to disseminate the good practice and lessons learnt.	6	As required	As required	
Miscellaneous reports required by NERC	7	As required	As required	

7. Key problems / Lessons learnt

The WSKE Programme started at the beginning of April 2011, however, the Service Level Agreement (SLA) was not signed until July 2011. This presented a problem to the PMG, as, without a signed SLA a project number could not be set up for the Programme. This resulted in a lack of access to the

budget and hence difficulties in paying costs for the Launch Event and expenses for PAG members to attend their first meeting. These issues were resolved in August 2011.

The PMG were operating without the support of a Coordinator for the first six months of the Programme. Interviews were held on 9th August for a candidate to fill the Band 7 post. The successful applicant, Kay Heuser joined the Group on 20th September 2011. Her knowledge of Swindon office and her efficient working soon helped reduce the accumulation of Programme activities.

The lack of the WSKEP Programme website remained a serious problem right up to March 2012. It was put at the top of the Risk Register as it significantly affected the way the Programme communicated with all its researchers and users. The first four Workshops were held during this period but there was no website address to give to participants to enable them to download papers or reports. NERC's portal became live but not searchable at the end of November. To access information beyond the home page, followers had to log in. This process was cumbersome and did not work properly. As a temporary solution the PMG commissioned a website to provide access to: information about the Programme, news about events and activities and a source of documents. This was up and running in February and approved by NERC in March 2012.

The production of publicity material in the form of pull up banners for use at events, was an outstanding issue until November 2011. NERC was intending to provide banners for all the KEPs however, as they were needed for the first Sub Area Workshop at the end of November 2011, the PMG organised the production of their own banners which were produced on time.

With the decision to halt the Call for KE Projects and KE Fellows in 2012, this will mean the WSKEP will not have these resources to mobilise into WSKEP activities – nor will they need WSKEP support. Similarly, the cancellation of two of the planned KE Programmes, and the scaling back of the Food-Agri KEP will mean that there will be only limited opportunities to develop synergies with these programmes (especially the Financial Services KEP). Equally, there will be less demand on the WSKEP to provide support in lessons learned, now these new KE Programmes have been cancelled, or scaled back.

8. Key Opportunities

The points below list the key opportunities for the WSKEP that have emerged during the reporting period.

- The closer links with the current Macronutrients and forthcoming Drought and Floods RP's offer great opportunities to embed formal KE mechanisms such as the WSKEP in the development and delivery of NERC science.
- The WSKEP is gradually increasing its profile among the NERC science and user communities. This is set to continue with plans and resources already in place. The emerging opportunities to build cross Research Council collaboration on water KE and science would have a major impact across all industry and government sectors.
- Facilitating greater awareness of the planned developments in European water policy – and the resultant science challenges.
- UK engagement in the European Commission Joint Programming Initiative in Water and for the WSKEP to shape the structure of all JPI – embedding “activities” in European Commission definition of JPI's, and pursuing more responsive and less bureaucratic operational procedures.

- NERC engagement in the UK Water Research and Innovation Framework. With the possibility of feeding SPS workshop outputs into the UKWRIP, and to use SPS workshops in developing the UKWRIP.
- CEH engagement in the Welsh Government WERH and Scottish Government CREW, opening up opportunities for the WSKEP to complement and be itself complemented through partnering with these water KE activities in the devolved administrations.
- The WSKEP has been privileged to secure the services of a very proficient facilitator who has a client portfolio that includes the European Commission DG Environment, the European Environment Agency among others. Delegates at WSKEP SPS workshops have contracted him to deliver participatory workshops for their own organisations (CCN-OFWAT-Defra-EA). There is some possibility that synergies could be achieved between some of these activities.

The WSKEP is emerging as a key component in the developments to improve researcher – user communications, coordination and collaboration. The PMG is responding to these opportunities and to achieve the increased impacts that these processes will facilitate.

9. Plans for the next period

Activities planned for the next period include:

- Six more SPS Workshops, the first on 4th April 2012 in London
- The fourth PAG meeting on 8th May 2012
- Three Sub Area Review meetings all in June 2012
- Co-sponsorship of a CIWEM organised conference on water and farming in June 2012
- Presentation of a paper at the British Hydrological Society's National Symposium in Dundee in July 2012
- Continuing User Based activities consolidating and improving smartness of the KE activities with existing partners, and developing partnerships with new user groups
- Maximise benefits from the remaining KE Fellows until the end of their grants
- Facilitate long term sustainability of the CCN and BTN Networks, and share experiences / best practice with the other NERC KE Programmes
- Meet with NERC Flood RP stakeholders
- Regular updates to the WSKEP Website

10. WSKEP Finances

The PMG have prepared a Financial Statement for the year April 2011 – March 2012. This is submitted with the Annual Report.

Summary Statement¹

The total expenditure incurred by the WSKEP during 2011/12 was £628,203.98 against a total budget of £601,793.00 – of which the NERC contribution at 80% FEC was £502,563.18 against a budgeted NERC contribution of £481,434.40. Below is an explanation for each sub section of the Statement.

Staff Costs

During the reporting period it was agreed with NERC Swindon Office that the budget for staff costs could be increased from £200,000 to £250,000 by redistributing funds budgeted for recurrent costs to the staff costs budget. As previously reported, this redistribution of funding was to cover additional staff costs incurred late in the year as effort was put into gaining momentum after an initial slow start to WSKEP activities. The expenditure for staff cost in 2011/12 was £14,583.07 below the revised budget provision.

Non-Staff Costs

Travel and Subsistence

Travel and Subsistence expenditure for 2011/12 was £6,689.58 against a budget of £15,494.00 and therefore represented an under spend of £8,804.42 against this budget line. This under spend is a result of the lower rate of spend during the initial twelve months of the year. While the rates of spend on T&S is expected to increase during 2012/13, the budget for subsequent years will be revised downwards by approx 15-20% to more realistically reflect the expected levels of future spend.

Consumables (inc Literature and Marketing).

Expenditure for consumables during 2011/12 was £678.47 against a budget of £2,100.00. Due to transferring responsibility for graphic design and printing from NERC Swindon Office to external contractors working directly to the WSKEP – the bulk of the expenditure on literature, banners and publicity material is reported under the Contractors heading below. The spend under Consumables reflects initial costs associated with material produced by NERC SO in the first three months of the programme, and incidental expenditure made by or invoiced directly to the WSKEP management office.

Events – hosted by the KEP

The WSKEP hosted two events including a launch event at BIS in June 2011 and the co-sponsorship of a conference on the Blueprint for Safeguarding European Waters. Expenditure on these two events was £11,736.72 against a budget provision of £7,110.00 – representing an over spend of £4,626.72.

Events – General Promotion

Substantial additional resource was allocated to general promotional activities above the provisions made in the Business Plan at the start of the Programme. The expenditure on this budget line in 2011/12 was £44,848.00 against a budget of £9,000.00. The greater priority given to this area was required to respond to the need to raise the profile of water research, KE and innovation at political levels (through participation in three parliamentary events), and to increase the profile of UK water research expertise at international levels (by supporting the Oxford water security conference inputs to Rio+20).

¹ All financial data is reported at Full Economic Cost (FEC) unless other stated.

Events – Attended

WSKEP staff attended a number of water security related conferences, where the WSKEP was publicised. Expenditure against this budget lines was £622.00 against a budget provision of £7,360.00. The low expenditure reflects the time pressure that WSKEP staff have been under to establish the programme – and an unrealistically high initial budget provision. While attendance at external conferences is increasing this budget line will be scaled back in the 2012/13 and 2013/14.

Contractors – event facilitation

As earlier reported, by working through and partnering with existing major centres of water research and innovation it has been possible to significantly reduce expenditure on event facilitation below that in the initial budget. Expenditure during the year was £76,648.14 against a budget of £234,400.00. The use of a single event facilitator has also enabled the programme to achieve costs savings – while delivering a far greater coherence in the design, delivery and outputs of the different workshops.

Contractors – report writing

Following inputs from major users (Defra/EA), increased effort was put into report writing, and in particular into Synthesis Report type outputs. Four such reports were commissioned during 2011/12 including reports on ecosystem services approaches and the Water Framework Directive, on stakeholder participatory approaches, environmental flows and on accessing environmental data (for the Defra/EA Pilots and Water White Paper related user needs). Much of these reports involve pull through of available knowledge from the NERC research base. Expenditure under this budget line was £79,610.00 in 2011/12 against a budget of £13,960.00.

Report writing in regards to the SPS workshops has until now been allocated to either the event facilitation or CEH staff cost budget lines.

Contractors – others

Expenditure for other contractors during 2011/12 was £110,212.64 against a budget provision of £123,450.00 – an under spend of £13,237.36. Under this heading are the costs associated with taking on design, literature and the web site – and of using an external communications company. Also included under this budget line are the actions being commissioned through industry groups, trade and professional associations, and university groups prepared to undertake KE activities targeting key industry sectors and/or government bodies. As was planned, the WSKEP is mobilising additional manpower through these partnership to achieve its objectives – including transformation influences upon these partner organisations.

Equipment

A small amount of equipment has been purchased totally £1,509.57. This has included licensing of software / servers to manage the WSKEP e-newsletter, and the purchase of two iPads (and Vodafone accounts) to support WSKEP communications at exhibitions.

Other Costs

Other costs for 2011/12 totalling £1,377.70 against a budget allocation of £4,000.00 were made for various items including subscription to the SWAN water sensors network, catering costs at CEH for the PAG and visitors, and some insurance costs for transporting WSKEP publicity material around the UK.

Finance Conclusions

The overall expenditure has come in close to the level at which it was budgeted, but with some redistribution between the different budget lines. This redistribution of expenditure is to be expected with the establishment of an entirely new type of KE activities. The savings made in delivery of the SPS workshops has meant that more reports have been able to be commissioned – and that working with existing trade, professional and university networks has been possible.

Similar overall levels of expenditure are expected, but with the budget plan and distribution between budget lines for 2012/13 reflecting the lessons learned in the first year of the Programme.